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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,291	06/27/2003	Steven Clay Moore	AMG.4017.PAT	8734

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EXAMINER	
MEHMOOD, JENNIFER	
ART UNIT	PAPER NUMBER
2612	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/28/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/607,291	MOORE, STEVEN CLAY	
	Examiner	Art Unit	
	Jennifer A. Mehmood	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *November 6, 2006 - amendments*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-40* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-40* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *06 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Specification

1. The rejection regarding the specification is withdrawn due to the amendments filed on November 6, 2006

Drawings

2. The objection to the drawing is withdrawn due to the replacement figures filed on November 6, 2006

Claim Rejections - 35 USC § 112

3. The rejection is withdrawn due to the amended specification filed on November 30, 2005.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4-7, 14, 16, 17, 20, 22, 24, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Middlebrook et al. (US 4,638,295).

For claim 1, Middlebrook discloses a system to sense when a turn signal for a vehicle is turning and indicate that the vehicle is turning by varying a

frequency and/or intensity with which the turn signal blinks, signaling to other motorists that the vehicle is turning (col 1, lns 8-14), wherein the frequency and/or intensity with which the turn signal blinks is varied based upon an amount of time during which the vehicle is turning (col 2, lns 29-42).

For claim 2, Middlebrook discloses using microcontroller(s), to take switching and sensory inputs and output a pulsing sequence to a circuit of the microcontroller(s) that drives turn signal lamps when the vehicle is turning (col 4, lns 59-67; col 5, lns 1-9; Fig. 2A, items 108, 94, 68; 110; col 6, lns 1-15).

For claim 4, Middlebrook discloses a wheel (shaft) position sensor, or other resistive, capacitive or inductive sensor, to determine an amount to alter the frequency or intensity of the turn signal (col 4, lns 20-25 and 30-34; col 5, lns 17-26; Fig. 2A, item 52). The steering wheel column comprises both a wheel and a shaft for controlling vehicle movement. Therefore, Middlebrook discloses a shaft position sensor.

For claim 5, Middlebrook discloses adjusting turn signal frequency and/or intensity proportionally to a position of a shaft and/or the amount of time the vehicle has been turning (col 2, lns 29-42).

For claim 6, Middlebrook discloses an apparatus to communicate a turn of a vehicle, the apparatus comprising: a sensor to detect a position of a shaft of the vehicle (Fig. 2A, item 52); a control circuit to generate an output signal (col 4, lns 62-68), wherein the output signal varies in proportion to the position of the wheel (col 5, lns 17-26); and a turn signal lamp to produce a turn signal based upon the output signal, wherein the output signal varies a frequency and/or

intensity with which the turn signal lamp blinks in proportion to the position of the shaft (col 4, lns 20-40; col 6, lns 6-15).

For claim 7, Middlebrook discloses a switch to activate the control circuit to indicate the turn upon activation of the switch (col 5, lns 15-26; Fig. 2A, item 52).

For claim 14, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 6 as stated above.

For claims 16 and 20, the claims are interpreted and rejected for the same reasons as stated in the rejection of claims 1 and 4 as stated above.

For claim 17, Middlebrook discloses a shaft position sensor to (Fig. 2A, item 52; col 2, lns 26-42); to determine an amount to alter the frequency or intensity of the turn signal based upon a displacement of a shaft (col 5, lns 17-26).

For claim 20, Middlebrook discloses a method for communicating a turn of a vehicle comprising: generating an output signal with a frequency that varies in proportion to a position of a shaft (col 2, lns 29-40; col 4 ,lns 65-68; Fig. 2A, item 52); and outputting a turn signal in response to application of the output signal to a turn signal lamp, wherein the turn signal flashes in relation to the frequency (col 5, lns 15-26).

For claim 22, Middlebrook discloses varying a current to drive a thermal flasher for the turn signal (col 1, lns 25-32). Current varies in order to produce a flashing light.

For claim 24, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 17 as stated above. Furthermore, Middlebrook discloses rotational position between a previous position of the shaft and the position of the shaft.

For claim 28, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 1 and 4 as stated above. In addition, Middlebrook discloses that during a turn, wheels are turned at an angle (col 5 lns 17-26).

6. Claims 11-13, 18, 36, 37, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Dantoni (US 5,673,019).

For claim 11, Dantoni discloses an apparatus to communicate a turn of a vehicle, the apparatus comprising: a sensor to detect an angle of a wheel of a vehicle (col 2, lns 26, 27, and 35-42); a control circuit to generate an output signal (col 5 lns 32-40; Fig. 1A, item 266), wherein the output signal varies based upon the angle of the wheel; and a turn signal lamp to produce a turn signal based upon the output signal, wherein the angle of the wheel varies the frequency and/or intensity with which the turn signal lamp blinks (col 3, lns 55-67; col 4, lns 1-4).

For claim 12, Dantoni discloses a switch to indicate the turn upon activation of the switch by the driver (col 4, lns 30-40; Fig. 1A, item 218).

For claim 13, Dantoni discloses the control circuit comprises a microcontroller to drive the turn signal lamp (Fig. 1B, item 266 and all switches on plate 266; col 3, lns 40-50).

For claim 18, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 11 as stated above.

For claim 36, Dantoni discloses a method for communicating a turn of a vehicle, the method comprising: sensing an angle of a wheel of the vehicle while the vehicle is moving (col 2, lns 27-38); generating an output signal based upon the angle (col 3, lns 57-67; col 4, lns 1-5); and applying the output signal to a turn signal lamp to vary an intensity with which the turn signal lamp blinks based upon the angle (col 4, lns 12-30).

For claim 37, Dantoni discloses varying a wattage applied to the turn signal. Wattage is varied by increasing the amount of light(s) to vary intensity (col 3, lns 60-67; col 4, lns 1-4 and 27-29).

For claim 39, Dantoni discloses a method for communicating a turn of a vehicle, the method comprising: sensing a position of a shaft of the vehicle; generating an output signal for the vehicle (col 2, lns 27-42), wherein a wattage of the output signal varies based on the position of the shaft (less illumination lower wattage, more illumination higher wattage); and applying the output signal to a turn signal lamp to vary an intensity with which the turn signal lamp blinks based upon the position (col 4, lns 12-30).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to

> be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 8, 9, 21, 25, 26, 29, 30, 32, 33, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Middlebrook et al. (US 4,638,295), and further in view of Dantoni (US 5,673,019).

For claims 8 and 9, Middlebrook discloses varying a frequency of the turn signal, but does not disclose varying a wattage to vary a frequency or intensity. However, Dantoni discloses a control circuit adapted to vary a wattage to vary an intensity of the turn signal. Wattage is varied by increasing the amount of light(s) to vary intensity (col 3, lns 60-67; col 4, lns 1-4 and 27-29). It would have been obvious to vary a wattage to vary frequency and intensity so that a driver is visually alerted to a degree of a turn, via a flashing light with variable brightness, in order to avoid a collision (col 1, lns 52-56).

For claims 21 and 26, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 8 and 9 as stated above regarding varying an intensity of a turn signal and varying wattage applied to a blinker (turn signal).

For claim 25, the claim is interpreted and rejected for the same reasons as stated in the rejection of claims 11 and 20 as stated above regarding angle of wheel.

For claim 30, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 8 as stated above regarding wattage.

For claims 29 and 32, Middlebrook discloses all of the limitations of claim 1 except Middlebrook discloses varying a frequency, not intensity. Dantoni, however, discloses varying an intensity of the turn signal (col 3, lns.60-67; col 4, lns 1-4 and 27-29). It would have been obvious to vary an intensity of a turn signal so that a driver is visually alerted to a degree of a turn, via a flashing light with variable brightness, in order to avoid a collision (col 1, lns 52-56).

For claim 33, the claim is interpreted and rejected for the same reasons as stated in the rejection of claim 1.

For claim 35, the claim is interpreted and rejected for the same reasons as stated in the rejections of claims 8 and 9 as stated above (in section 9 – New Grounds of Rejection) regarding varying an intensity of a turn signal and varying a wattage of a blinker (turn signal).

9. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dantoni (US 5,673,019), as applied to claim 18, and further in view of Middlebrook et al. (US 4,638,295).

Dantoni discloses a circuit breaker and not a microcontroller to generate a pulsing sequence. However, Middlebrook discloses a control circuit that comprises a microcontroller to generate a pulsing sequence to drive the turn signal lamp when the vehicle is turning (col 5, lns 59-67; col 6, lns1-6; Fig. 2A, items 108, 68, 90-96, 110). It is obvious that microcontrollers are often used in lieu of circuit breakers for compacting circuitry to meet the requirements of smaller designs.

10. Claims 3, 10, 15, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Middlebrook et al. (US 4,638,295), as applied to claim 1, and further in view of Goertler et al. (US 4,348,655).

Middlebrook discloses a flasher relay (Fig. 2A, items 92, 94) as a pulse generator, but does not disclose a pulse generator dependent on analog voltage levels. However, Goertler discloses pulse generators where the duty cycle and amplitude of the output signal is dependent upon analog voltage levels, to output the pulsing sequence to a circuit that drives the turn signal lamps when the vehicle is turning (col 4, lns 52-68; Fig. 1, items 40-48). It would have been obvious to one of ordinary skill in the art, at the time the invention was made to use a pulse generator dependent on analog voltage levels so that the generator is developed as a voltage controlled oscillator in order to produce an output from a specific signal.

11. Claims 27, 31, 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Middlebrook et al. (US 4,638,295) and Dantoni (US 5,673,019), and further in view of Goertler et al. (US 4,348,655).

Claims 27 and 31 are interpreted and rejected for the same reasons as stated in the rejection of claim 3 as stated above.

Claim 34 is interpreted and rejected for the same reasons as stated in the rejection of claims 3 and 29.

12. Claims 38 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dantoni (US 5,673,019), as applied to claim 39, and further in view of Goertler et al. (US 4,348,655).

Dantoni does not disclose a pulse generator dependent on analog voltage levels. However, Goertler discloses outputting a turn signal with a varying duty cycle and amplitude (col 4, lns 52-68; Fig. 1, items 40-48). It would have been obvious to vary a duty cycle and amplitude of the voltage controlled oscillator in order to produce an output from a specific signal.

Response to Arguments

13. Applicant's arguments filed November 6, 2006 have been fully considered but they are not persuasive:

For claims 1-5, 16, Applicant argues that Middlebrook does not describe, teach or suggest, expressly or inherently, "[a] system to... indicate that the vehicle is turning by varying a frequency and/or intensity ... based upon an amount of time during which the vehicle is turning." However, Middlebrook does disclose "[a] system to... indicate that the vehicle is turning by varying a frequency and/or intensity ... based upon an amount of time during which the vehicle is turning." See rejection to claim 1. In addition, as discussed in the office action dated July 20, 2006 (see rejection to claim 1), the amount of time is interpreted as a window of time during which vehicle movement or motion occurs from a first position of a vehicle to a second position of a vehicle. For example, during a first time, the vehicle is at zero time when the vehicle is stopped and the turn signal is activated while the vehicle is waiting to move into a turn, but not yet turning. The vehicle is at a time greater than zero when the motion detector senses vehicle movement and actual turning of the vehicle occurs. While the

turning process occurs, the frequency with which the turn signal lamps flash are varied according (col 2, lns 35-42).

For claims 6-10, 14, 20, Applicant argues that Middlebrook does not disclose an apparatus comprising a turn signal lamp to produce a turn signal based upon the output signal, wherein the output signal varies a frequency and/or intensity with which the turn signal lamp blinks in proportion to the position of the shaft. However, Middlebrook does disclose the output signal varies a frequency and/or intensity with which the turn signal lamp blinks in proportion to the position of the shaft. Since movement of the positions of the steering column shaft produces an output signal that visually alters a turn signal lamp by frequency (blinking rate). Also, see rejection and citations for claim 2 above. For the above reasons, the examiner strongly disagrees with Applicant.

For claim 28, the response to applicant's arguments are the same as for claims 1-5 and 16 above. In addition, Middlebrook discloses a steering wheel position switch (52) that determines the degree of turn of a steering wheel, which provides additional evidence that the angle of the turn is accounted for by measuring the angle in degrees.

For claims 11, 18, 36, 39, Applicant argues by describing that the structure of the Dantoni reference and the present invention (particularly the circuits) are very different and that Dantoni requires space for three bulbs, three mounts, three sets of wiring to provide three levels of intensity. While Applicant admits that Dantoni varies an intensity with which the turn signal lamp blinks, the argument about the differences between the Dantoni invention and the present

invention are irrelevant because the differences are not presented as claim limitations. In addition, Dantoni particularly discloses detecting an angle of a wheel. Figure 1C depicts a microswitch attached to a steering column (col 5, lns 32-45). The steering wheel and shaft comprise a steering column. In addition, Dantoni discloses angular positions of the wheel measured in terms of slight, medium, and sharp turn. The radial motion reflects the degree of turn (i.e. angular position) and motion (col 2, lns 26-41) and the degree of the turn is indicated as varying the lamp intensity.

For claims 25 and 32, Applicant argues that the combination of Dantoni and Middlebrook do not disclose varying an intensity of a turn signal based upon the angle (of the wheel of the vehicle). Middlebrook discloses varying a frequency of a turn signal based on position of the steering column (comprising the wheel and the shaft). Dantoni discloses varying an intensity of a turn signal based on position of the steering column (comprising the wheel and the shaft). In addition, Dantoni discloses the turn signal based upon the angle of the wheel (see above claims 11 and 18). In addition, Appellant argues that the combination of Middlebrook and Dantoni requires the use of impermissible hindsight. Both Middlebrook and Dantoni disclose movement of the positions of the steering column to produce an output signal that visually alters a turn signal lamp - either by frequency (blinking rate) or intensity (brightness). For the above reasons, the examiner strongly disagrees with Appellant that the combination of the references require impermissible hindsight.

Conclusion

14. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Mehmood whose telephone number is (571) 272.2976. The examiner can normally be reached 8:00-4:30, M-

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Daniel Wu can be reached at (571) 272.2964. The fax phone number for the organization where this application or proceeding is assigned is (571) 273.8300 for regular and after final communications.

Any inquiry of a general nature of relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272.2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Mehmood
December 1, 2006

DANIEL WU
SUPERVISORY PATENT EXAMINER
12/21/06